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# **Child Safety Seat Usage In Illinois**

## **July 2003 Observational Survey Results**

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# **Illinois Department of Transportation**

## **Division of Traffic Safety**

### **Evaluation Unit**

The Evaluation Unit within the Division of Traffic Safety in the Illinois Department of Transportation focuses on evaluation and monitoring of various highway safety programs in Illinois. The research and evaluation issues include costs and benefits of child seats, safety belts and motorcycle helmets in the real world of crashes, evaluation of highway safety projects and programs, such as Traffic Law Enforcement Program (TLEP), Local Alcohol Program (LAP), IMaGE projects, high accident locations project, and health care costs and utilization of motor vehicle crash victims.

This report provides a descriptive analysis of child safety seat usage in Illinois. The survey was an observational survey conducted statewide during July 2003 at selected survey locations which included Day Care Centers, Health Care Centers, McDonald's restaurants, and Shopping Malls. This survey provided a statistically representative sample of child safety seat usage in the State of Illinois.

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## **Executive Summary**

1. During July 2003, a total of 3,223 children were observed in 2,324 passenger cars, pickup trucks, and vans at selected Day Care Centers, McDonald's restaurants, Health Care Centers, and Shopping Malls across Illinois.
2. The overall child safety seat usage rate is 83 percent. When observations in which the child restraint is used incorrectly are excluded, the usage rate drops to 60 percent.
3. Downstate Counties (Champaign, Macon, Montgomery, Peoria, Rock Island, and St. Clair) had the highest percentage of correctly restrained children at over 63 percent, while Cook County and the Collar Counties (Dupage, Kane, Lake, McHenry, and Will) had correctly restrained usage rates of 59.8 percent and 57.7 percent respectively.
4. Over 67 percent of children were correctly restrained at Day Care Centers. Shopping Malls had a correct child safety seat usage rate of 61.1 percent. The lowest usage rates for child safety seats were found at McDonald's restaurants and Health Care Centers at 53.6 percent and 48.3 percent respectively.
5. Vans had the highest rate of correctly restrained children at 67.7 percent. Automobiles had a usage rate of correctly restrained children at over 57 percent, while the usage rate for pickup trucks was only 52.1 percent.
6. Belted drivers were much more likely to correctly restrain their children (71.8 percent) than unbelted drivers (32.9 percent).
7. Since 1997, the child safety seat usage rate has increased by 16.2 percentage points (from 66.8 percent in 1997 to 83.0 percent in 2003). The correct usage rate only rose 7.8 percentage points (from 52.2 percent in 1997 to 60.0 percent in 2003).
8. The Collar Counties had an increase of 9.4 percentage points of correct child safety seat use from 1997 to 2003, while Cook County and the Downstate Counties had increases of 7.5 and 5.7 percentage points respectively.
9. From 1997 to 2003, correct child safety seat use increased by 9.8 percentage points at Day Care Centers, 8.9 percentage points at McDonald's restaurants, and 8.5 percentage points at Shopping Malls. On the other hand, the child seat usage rate decreased by 1.9 percentage points at Health Care Centers.
10. Since 1997, correct child safety seat use has increased by 9.5 percentage points in vans, 6.6 percentage points in pickup trucks, and 6.4 percentage points in automobiles.

11. Male drivers had an increase of 12.6 percentage points of correctly restraining their children (from 47.2 percent in 1997 to 59.8 percent in 2003), while female drivers had an increase of only five percentage points (from 55.1 percent in 1997 to 60.1 percent in 2003).
12. Correct child safety seat use increased by 4.7 percentage points for unbelted drivers (from 28.2 percent in 1997 to 32.9 percent in 2003). On the other hand, there was relatively no change for belted drivers during this time period.

## Survey Design

Using a multi-stage random sampling technique, a total of 3,223 children were observed in 2,324 passenger cars and pickup trucks in Illinois in 2003. There was a total of 117 randomly selected survey locations: 41 Day Care Centers, 11 Health Care Centers, 29 McDonald's restaurants, and 36 Shopping Malls within 12 selected counties. The counties were grouped into three different regions which included Cook County, the Collar Counties (Dupage, Kane, Lake, McHenry, and Will), and Downstate Counties (Champaign, Macon, Montgomery, Peoria, Rock Island, and St. Clair). The survey design had four characteristics:

1. The survey was conducted between 7:00 a.m. and 6:30 p.m. when the light was adequate for observation.
2. The survey was restricted to a total of 30 observations or an hour of observation per site.
3. The survey was conducted at the exit/entrance of selected locations.
4. The survey included four incorrect uses of child seats:
  - seat faces wrong way,
  - harness not used,
  - seat not secured, and
  - belt across face.

For more information on the design of the survey refer to "Design of the Child Safety Seat Survey", Division of Traffic Safety, Illinois Department of Transportation (IDOT), June 1996.

## Results of Child Safety Seat Survey in Illinois

**Table 1** through **Table 7** provide descriptive information on the child safety seat usage rate and its correlate in Illinois. **Table 1** shows that the overall child restraint usage rate in Illinois is 83 percent. After excluding total number of

observations in which the child restraint is used incorrectly, the usage rate is reduced to 60 percent.

**Table 1**  
**CHILD SAFETY SEAT USAGE RATE IN ILLINOIS**

Child #	No Restraint	Incorrect Use	Correct Use	Total Observed	Usage Rate Total	Usage Rate (excludes incorrect use)
Child 1	345	547	1,432	2,324	85.2%	61.6%
Child 2	147	163	437	747	80.3%	58.5%
Child 3	46	30	57	133	65.4%	42.9%
Child 4	9	2	8	19	52.6%	42.1%
<b>Total</b>	547	742	1,934	3,223	83.0%	60.0%

Note: Incorrect Use = seat faces wrong way, harness not used, seat not secured, and belt across face

**Table 2** presents frequency and percentage distributions for selected demographic variables, which include type of vehicle, gender of driver, driver's belt status, and site type. As expected, a large portion of vehicles observed were automobiles (65.3%), while the second largest number of vehicles observed were vans (25.9%), and the lowest number of vehicles observed were trucks (8.8%). The majority of the drivers observed were females (62.4%). A large proportion of drivers observed, were wearing their seat belts (71.4%). The largest proportion of vehicles observed, were seen at Shopping Malls (36.6%). The second largest amount of vehicles observed, were seen at Day Care Centers (31.7%). About 24 percent of the vehicles were observed at McDonald's restaurants, while only 7.7 percent of the vehicles were observed at Health Care Centers.

**Table 3** depicts frequency and percentage distributions of correct child restraint use (excluding incorrect use) by region. Although Cook County had the most observations when compared to the Downstate or Collar Counties, the



Downstate Counties had the highest rate of correctly restrained children at 63.7 percent. Cook County had the next highest usage rate at 59.8 percent, while the Collar Counties had the lowest usage rate at 57.7 percent.

<b>Table 2</b> <b>FREQUENCY &amp; PERCENTAGE DISTRIBUTIONS</b> <b>OF VEHICLES OBSERVED</b>		
Type of Vehicle		
Type of Vehicle*	Total Vehicles Observed	Percent
Automobile	1,513	65.3%
Truck	204	8.8%
Van	601	25.9%
Gender of Driver		
Gender*	Total Drivers	Percent
Male	871	37.6%
Female	1,443	62.4%
Driver's Belt Status		
Belt Status*	Total Drivers	Percent
Driver Belted	1,641	71.4%
Driver Unbelted	657	28.6%
Vehicles Observed by Site Type		
Site Type	Total Vehicles Observed	Percent
Day Care Center	736	31.7%
Health Center	179	7.7%
McDonald's	559	24.1%
Shopping Mall	850	36.6%
<b>Total</b>	<b>2,324</b>	<b>100.0%</b>

\*Note: Total N is different due to missing values.

**Table 4** provides information on correct child restraint usage rates by location. The lowest usage rates were found at Health Care Centers and McDonald's restaurants (48.3 percent and 53.6 percent respectively). Shopping Malls had a

slightly higher correct usage rate at 61.0 percent and Day Care Centers had the highest rate of correctly restrained children at 67.1 percent.

**Table 3**  
**Frequency & Percentage Distributions**  
**of Child Restraint Use by Region in Illinois**

<b>Region</b>	<b>Total Correctly Restrained</b>	<b>Total Observed</b>	<b>Usage Rate (excludes incorrect use)</b>
Cook County	1,033	1,729	59.8%
Collar Counties	482	836	57.7%
Downstate Counties	419	658	63.7%
<b>Total</b>	<b>1,934</b>	<b>3,223</b>	<b>60.0%</b>

**Table 4**  
**Frequency & Percentage Distributions**  
**of Child Restraint Use by Location in Illinois**

<b>Location</b>	<b>Total Correctly Restrained</b>	<b>Total Observed</b>	<b>Usage Rate (excludes incorrect use)</b>
Day Care Center	658	980	67.1%
Health Care Center	116	240	48.3%
McDonald's	452	843	53.6%
Shopping Mall	708	1,160	61.0%
<b>Total</b>	<b>1,934</b>	<b>3,223</b>	<b>60.0%</b>

**Table 5** shows a cross-tabulation (frequency and column percent) of correct child restraint use by vehicle type. Vans had the highest rate of correctly restrained children at 67.7 percent and automobiles had the second highest usage rate at 57.6 percent. As expected, pickup trucks had the lowest correct usage rate at 52.1 percent.

**Table 6** shows female drivers had a slightly higher correct restraint usage rate than male drivers (60.1 percent compared to 59.8 percent).

**Table 5**  
**Frequency & Percentage Distributions of**  
**Child Restraint Use by Vehicle Type in Illinois**

<b>Child Restraint Use</b>	<b>Automobile</b>	<b>Truck</b>	<b>Van</b>	<b>Total</b>
Properly Restrained <b>Column %</b> <b>(Correct Usage Rate)</b>	1,173 <b>57.6%</b>	137 <b>52.1%</b>	619 <b>67.7%</b>	1,929 <b>60.0%</b>
Not Restrained/ Not Properly Restrained <b>Column%</b>	8623 42.4%	126 47.9%	296 32.3%	1,285 40.0%
<b>Total</b>	2,036	263	915	3,214

Note: Total N is different due to missing values.

**Table 6**  
**Frequency & Percentage Distributions of**  
**Child Restraint Use by Driver's Gender in Illinois**

<b>Child Restraint Use</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>
Properly Restrained <b>Column % (Correct Usage Rate)</b>	729 <b>59.8%</b>	1,194 <b>60.1%</b>	1,923 <b>60.0%</b>
Not Restrained/Not Properly Restrained <b>Column %</b>	491 41.2%	793 39.9%	1,284 40.0%
<b>Total</b>	1,220	1,987	3,207

Note: Total N is different due to missing values.

**Table 7** presents a cross-tabulation of correct child restraint use by belt status of the driver. Belted drivers show that they have a higher percentage of correctly

restraining their children in safety seats (71.8 percent), while only 32.9 percent of unbelted drivers correctly restrain their children.

**Table 7**  
**Frequency & Percentage Distributions of**  
**Child Restraint Use by Driver's Belt Status in Illinois**

<b>Child Restraint Use</b>	<b>Driver Belted</b>	<b>Driver Unbelted</b>	<b>Total</b>
Properly Restrained <b>Column % (Correct Usage Rate)</b>	1,593 <b>71.8%</b>	316 <b>32.9%</b>	1,909 <b>60.1%</b>
Not Restrained/Not Properly Restrained <b>Column %</b>	626 <b>28.2%</b>	644 <b>67.1%</b>	1,270 <b>39.9%</b>
<b>Total</b>	<b>2,219</b>	<b>960</b>	<b>3,179</b>

Note: Total N is different due to missing values.

**Table 8** provides information about correct usage rates and total usage rates in 1997, 2001, and 2003. Overall, there was an increase of 16.2 percentage points in the total usage rate of restrained children (from 66.8 percent in 1997 to 83.0 percent in 2003), while the correct usage rate increased by only 7.8 percentage points (from 52.2 percent to 60.0 percent). The percentage point increases for the overall usage rates for all children ranged from 16.3 for Child#1 to 30.0 for Child#4. The percentage point increases for correct restraint usage rates ranged from 8.3 for Child#1 to 20.0 for Child#4.

**Table 9** shows comparative analyses of correct safety seat usage rates for 1997, 2001, and 2003. The data are broken down by region, location, vehicle type, gender, and driver's belt status. Graphic presentations of child safety seat usage rates by selected characteristics are displayed in **Figure 1** through **Figure 5**.

**Table 8**  
**Overall Child Safety Seat Usage in Illinois**  
(Comparison of 1997, 2001, and 2003)

	Total Usage Rate of Restrained Children				Correct Usage Rate of Restrained Children (excludes Incorrect Use)			
	Usage Rate (1997)	Usage Rate (2001)	Usage Rate (2003)	Percent Change* (1997-2003)	Correct Usage Rate (1997)	Correct Usage Rate (2001)	Correct Usage Rate (2003)	Percent Change* (1997-2003)
<b>Statewide</b>	<b>66.8%</b>	<b>78.0%</b>	<b>83.0%</b>	<b>16.2%</b>	<b>52.2%</b>	<b>54.8%</b>	<b>60.0%</b>	<b>7.8%</b>
<b>Child #</b>								
Child 1	69.0%	81.0%	85.3%	16.3%	53.5%	57.3%	61.8%	8.3%
Child 2	59.6%	74.5%	80.0%	20.4%	48.6%	51.6%	58.3%	9.7%
Child 3	35.6%	51.1%	64.9%	29.3%	24.4%	30.4%	42.5%	18.1%
Child 4	20.0%	27.3%	50.0%	30.0%	20.0%	22.7%	40.0%	20.0%

\* Percent Change is calculated by subtracting the 1997 usage rates from the 2003 usage rates.

**Figure 1** shows the safety seat usage rate by three selected regions in Illinois. All three regions showed substantial increases in correct child safety seat use. The Collar Counties had the highest rate of increase (9.4 percentage points) of correct child safety seat use. Cook County had an increase of 7.5 percentage points, while the Downstate Counties only had an increase of 5.7 percentage points.

**Figure 2** shows correct child safety seat usage rates by location. Correct safety seat usage at Day Care Centers increased by 9.8 percentage points between 1997 and 2003. McDonald's restaurants and Shopping Malls had increases of 8.9 and 8.5 percentage points respectively. On the other hand, correct child safety seat usage for Health Care Centers decreased by 1.9 percentage points between 1997 and 2003.

**Figure 3** depicts a comparison of child safety seat usage by vehicle type in Illinois. All vehicle types showed increases in child safety seat usage. Vans had

the highest increase in safety seat usage (9.5 percentage points). Trucks had an increase of 6.6 percentage points for correct use of child safety seats and automobiles had the lowest increase of 6.4 percentage points.

**Figure 4** is a comparison between the driver's gender and child safety seat usage rates. Correct child safety seat usage for male drivers rose 12.6 percentage points (from 47.2 percent in 1997 to 59.8 percent in 2003), while correct child safety seat use for female drivers increased by only five percentage points (from 55.1 percent in 1997 to 60.1 percent in 2003).

**Figure 5** represents the driver's belt status by child safety seat usage. Belted drivers are more likely to restrain their children than unbelted drivers. Child restraint use for unbelted drivers increased from 28.2 percent in 1997 to 32.9 percent in 2003 (an increase of 4.7 percentage points). There was relatively little change in the use of child safety seats for belted drivers (from 71.0 percent in 1997 to 71.8 percent in 2003).

**Table 9**  
**Child Safety Seat Usage in Illinois**  
**by Selected Characteristics**

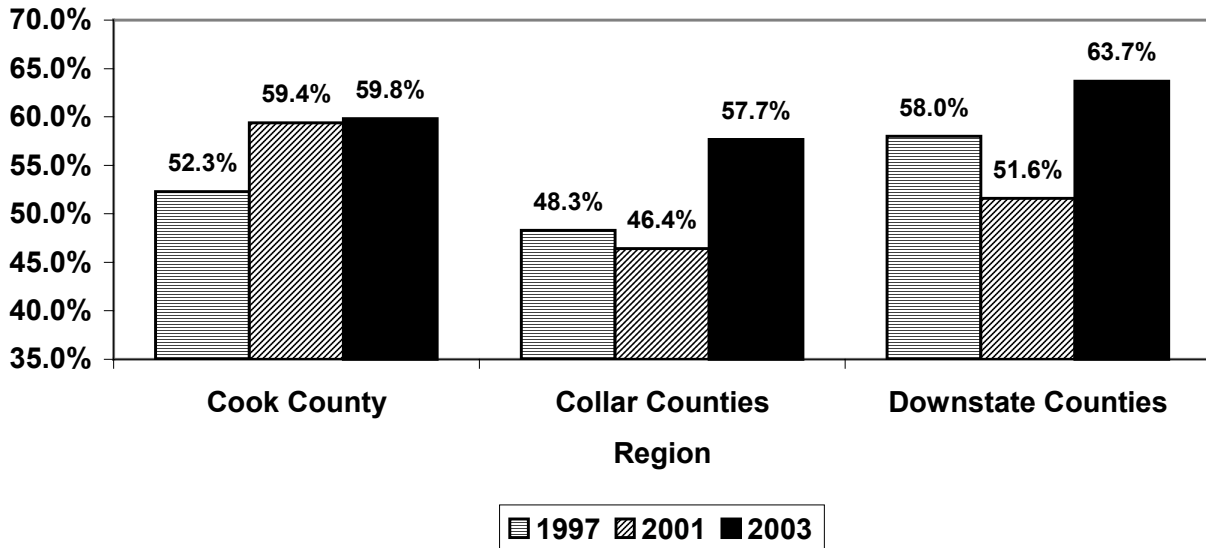
(excludes incorrect use)

**Comparison of 1997, 2001, and 2003**

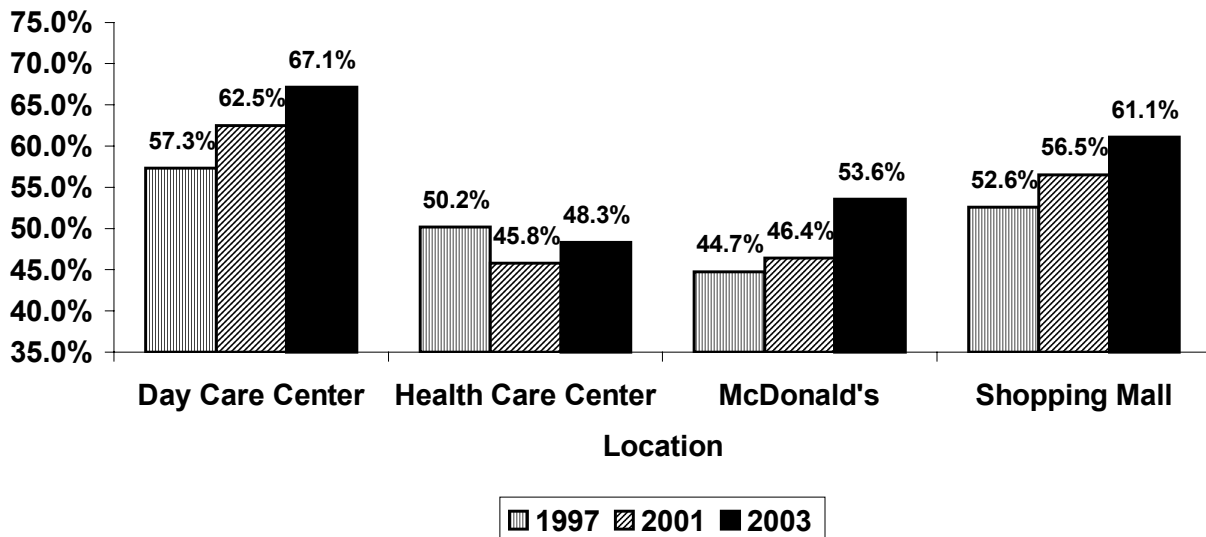
	Correct Usage Rate of Restrained Children (excludes Incorrect Use)			
	Usage Rate (1997)	Usage Rate (2001)	Usage Rate (2003)	Percent Change
	52.2%	54.8%	60.0%	7.8%
<b>Statewide</b>				
<b>Region</b>				
Cook County	52.3%	59.4%	59.8%	7.5%
Collar Counties	48.3%	46.4%	57.7%	9.4%
Downstate Counties	58.0%	51.6%	63.7%	5.7%
<b>Location</b>				
Day Care Center	57.3%	62.5%	67.1%	9.8%
Health Center	50.2%	45.8%	48.3%	-1.9%
McDonald's	44.7%	46.4%	53.6%	8.9%
Shopping Mall	52.6%	56.5%	61.1%	8.5%
<b>Vehicle Type</b>				
Automobile	51.2%	53.9%	57.6%	6.4%
Truck	45.5%	52.7%	52.1%	6.6%
Van	58.2%	58.5%	67.7%	9.5%
<b>Gender</b>				
Male	47.2%	51.7%	59.8%	12.6%
Female	55.1%	56.5%	60.1%	5.0%
<b>Driver's Belt Status</b>				
Belted	71.0%	68.2%	71.8%	0.8%
Unbelted	28.2%	28.7%	32.9%	4.7%

Note: Incorrect Use = seat facing the wrong way, harness not used, seat not secured, and belt across face

**Figure 1: Child Safety Seat Usage by Region in Illinois  
(1997, 2001, and 2003)**

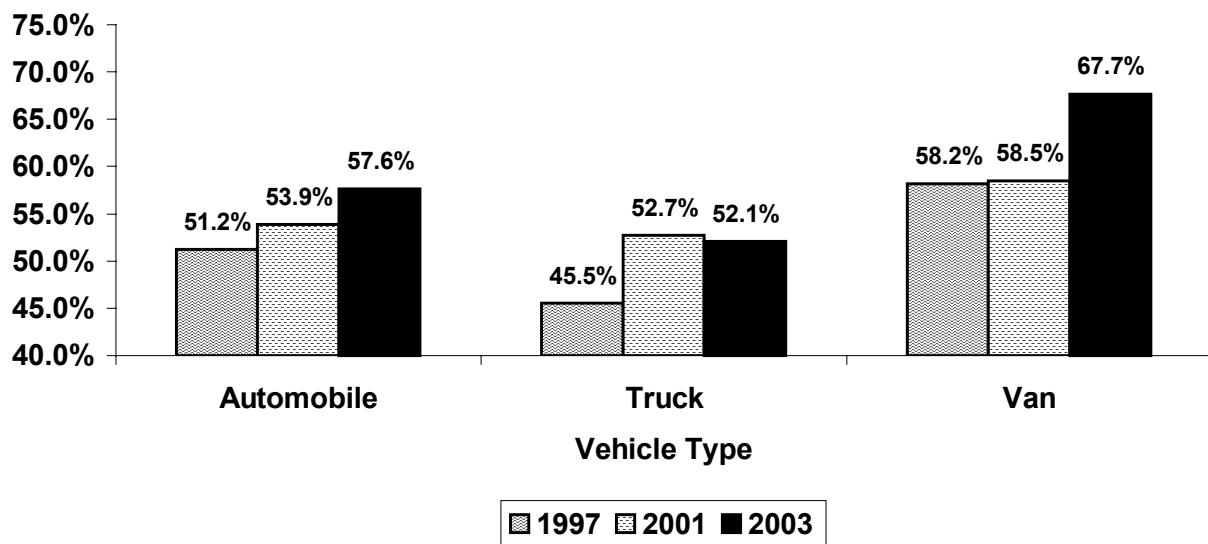


**Figure 2: Child Safety Seat Usage by Location in Illinois  
(1997, 2001, and 2003)**

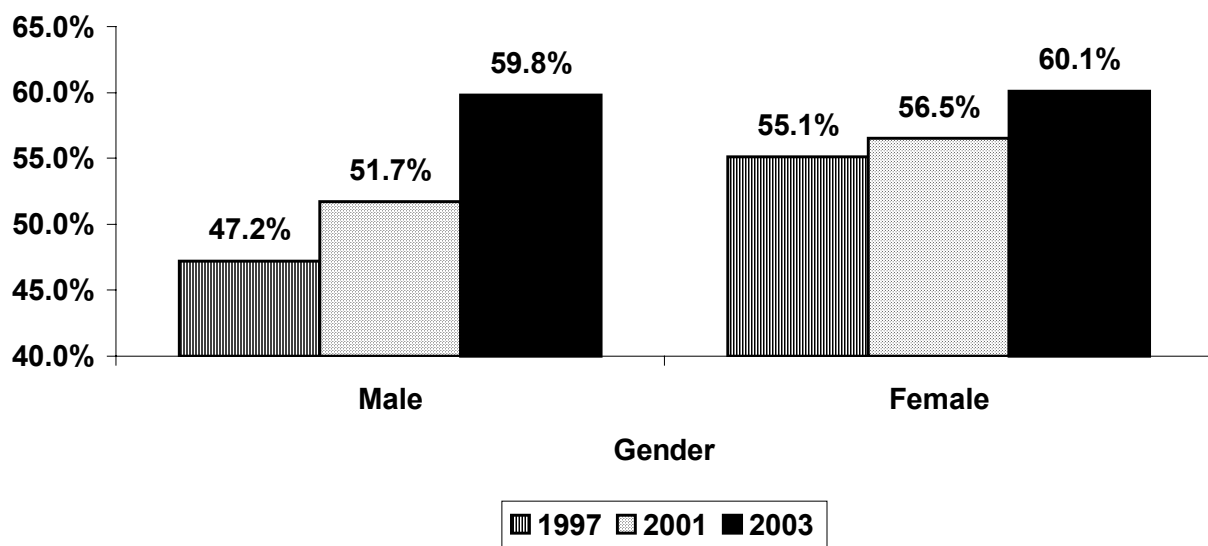




**Figure 3: Child Safety Seat Usage by Vehicle Type in Illinois (1997, 2001, and 2003)**



**Figure 4: Child Safety Seat Usage by Driver's Gender in Illinois (1997, 2001, and 2003)**



**Figure 5: Child Safety Seat Usage by Driver's Belt Status in Illinois (1997, 2001, and 2003)**

